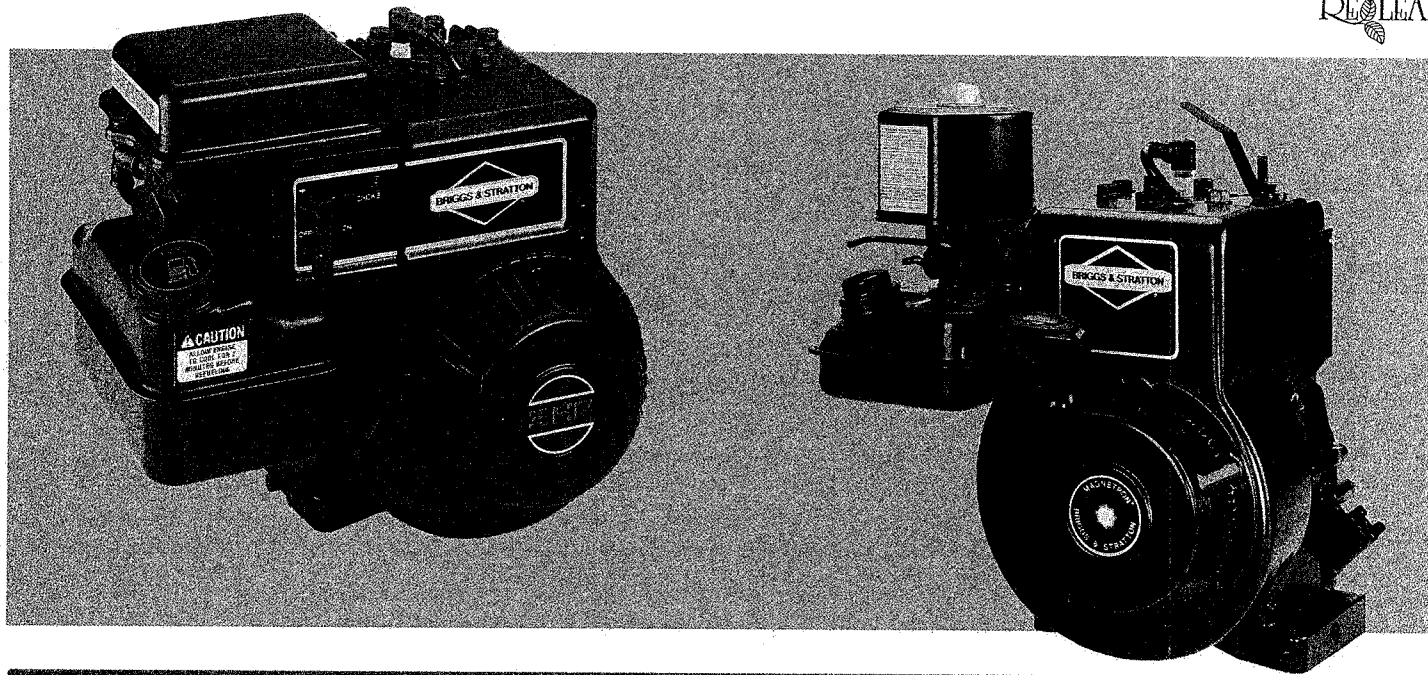




Operating and Maintenance Instructions for Model Series 90100 & 90200



Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201

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IMPORTANT SAFETY INFORMATION AND INSTRUCTIONS FOR ENGINE SELECTION ENGINE INSTALLATION ENGINE OPERATION

In the USA and Canada,
our 24 hour hotline is:

18002333723

Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201

www.briggsandstratton.com

Keep these instructions for future reference.



Before installing and operating this engine read and observe all warnings, cautions and instructions on both sides of this sheet, on the engine, and in the operating & maintenance instructions.

NOTE: This sheet of instructions and safety information is not meant to cover all possible conditions and situations that may occur. Read entire Operating & Maintenance Instructions for this engine AND the instructions for the equipment this engine powers. Failure to follow instructions and safety information could result in serious injury or death.

The safety alert symbol () is used to identify safety information about hazards that can result in personal injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

 **DANGER** indicates a hazard which, if not avoided, will result in death or serious injury.

 **WARNING** indicates a hazard which, if not avoided, could result in death or serious injury.

 **CAUTION** indicates a hazard which, if not avoided, might result in minor or moderate injury.

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**

HAZARD SYMBOLS AND MEANINGS



Fire



Explosion



Moving Parts



Toxic Fumes



Hot Surface



Shock



Kickback

(OVER)

FORM MS-6445-01/03

ENGINE SELECTION

| |
|--|
|  WARNING |
|  |
| Failure to select the correct engine could result in fire or explosion. |

- Some engines are unique and designed for specific applications or types of equipment. If this engine will be used to build new equipment, contact Briggs & Stratton to ensure that the engine is appropriate for the intended use.
Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Replacement engines should be the same model as the original engine, or be the Briggs & Stratton designated replacement engine. Refer to the Operation & Maintenance Instructions for engine identification information.
Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Do not use Briggs & Stratton engines on 3-wheel All-Terrain Vehicles (ATVs), motor bikes, air craft products, or vehicles intended for use in competitive events. Briggs & Stratton does not approve of or authorize such uses.

ENGINE INSTALLATION



- [1] Do not attempt to install this engine if you do not have the appropriate tools and knowledge of small engine installation procedures. Use only Briggs & Stratton parts. Contact your Authorized Service Dealer for assistance.
- [2] Do not modify the engine in any way without Briggs & Stratton factory approval. Any such modification is at the owner's sole risk.
- [3] If the exhaust system on the old engine was supplied by the equipment manufacturer, you must transfer the exhaust system and related components (original muffler and related pipes, brackets, clamps, and shields) to the new engine. All components must be in good condition.
- [4]



| | |
|--|---|
|  WARNING | Install muffler (and muffler deflector if used) so outlet points away from operator, fuel tank, and equipment, and so muffler heat will not damage or deform engine and components. |
|  | |
- [5]



| | |
|--|--|
|  WARNING | Ensure all fuel lines and fittings are properly assembled and do not leak. Replacement parts must be the same model as the original. |
|  | |
- [6]



| | |
|--|--|
|  WARNING | Ensure all wiring, including safety switches and engine shut-off components are completely installed and functioning properly. |
|  | |
- [7] Set engine speed to equipment manufacturer's specification. Refer to equipment manufacturer's manual. Do not tamper with governor springs, or other parts that will increase engine speed above specification.

- [8]







| | |
|--|--|
|  WARNING | All engine parts, including fuel cap, spark plug, muffler, air cleaner, and covers and guards for drive components (gears, belts, shafts, couplings, etc.) must be in place before attempting to start engine. |
|  | |
- [9]

| | |
|--|---|
|  WARNING | If engine is installed on walk behind lawn mower, all mower components, including cutting blade, must be correctly installed before attempting to start engine. |
|  | |
- [10]

| | |
|--|---|
|  WARNING | When working on the engine or equipment, remove spark plug wire from spark plug. For electric start, remove negative wire from battery. |
|  | |
- [11]

| | |
|--|--|
|  WARNING | Do not check for spark with spark plug removed. Use Briggs & Stratton spark tester #19368. |
|  | |

ENGINE OPERATION

| | |
|--|--|
|  |  WARNING |
| When adding fuel: | |
| Turn engine off and let engine cool at least 2 minutes before removing gas cap. Fill fuel tank outdoors or in well-ventilated area. Fill tank to about 1 inch below lowest portion of neck to allow for fuel expansion. Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources. | |
|  |  WARNING |
| When starting engine: | |
| Remove all external equipment/engine loads. Wait until spilled fuel is evaporated. Start engine outdoors. Pull cord slowly until resistance is felt, then pull rapidly. If engine floods, set choke to OPEN/RUN, place throttle in FAST and crank until engine starts. | |
|  |  WARNING |
| When operating equipment: | |
| Do not tip engine or equipment at angle which causes gasoline to spill. Run engine outdoors. Do not run in enclosed area, even if doors or windows are open. Do not choke carburetor to stop engine. | |

In The Interest Of Safety



BEFORE STARTING ENGINE, READ AND UNDERSTAND THE "OPERATING AND MAINTENANCE INSTRUCTIONS."



THIS SYMBOL MEANS WARNING OR CAUTION.

DEATH, PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY OCCUR UNLESS INSTRUCTIONS ARE FOLLOWED CAREFULLY.



WARNING: DO NOT

1. DO NOT run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odorless and deadly poison.
2. DO NOT place hands or feet near moving or rotating parts.
3. DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
4. DO NOT refuel indoors where area is not well ventilated. Outdoor refueling is preferred.
5. DO NOT fill fuel tank while engine is running. Allow engine to cool for 2 minutes before refueling. Store fuel in approved safety containers.
6. DO NOT remove fuel tank cap while engine is running.
7. DO NOT operate engine when smell of gasoline is present or other explosive conditions exist.
8. DO NOT operate engine if gasoline is spilled. Move machine away from the spill and avoid creating any ignition until the gasoline has evaporated.
9. DO NOT transport engine with fuel in tank.
10. DO NOT smoke when filling fuel tank.
11. DO NOT choke carburetor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
12. DO NOT run engine at excessive speeds. This may result in injury.

13. DO NOT tamper with governor springs, governor links or other parts which may increase the governed engine speed.
14. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
15. DO NOT check for spark with spark plug or spark plug wire removed. Use an approved tester.
16. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.
17. DO NOT strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.
18. DO NOT operate engine without a muffler. Inspect periodically and replace, if necessary. If engine is equipped with muffler deflector, inspect periodically and replace, if necessary, with correct deflector.
19. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible material in the muffler area.
20. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.
21. DO NOT touch hot muffler, cylinder, or fins because contact may cause burns.

22. DO NOT run engine with air cleaner or air cleaner cover (or cover directly over carburetor air intake, if Sno/Gard engine) removed.




WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING. Disconnect the negative wire from the battery terminal if equipped with a 12 volt starting system.
2. DO keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.
3. DO pull starter cord slowly until resistance is felt. Then pull cord rapidly to avoid kickback and prevent hand or arm injury.
4. DO examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
5. DO use fresh gasoline. Stale fuel can gum carburetor and cause leakage.
6. DO check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

NOTE: Use Original Briggs & Stratton Service Replacement Parts when servicing your engine. Briggs & Stratton Authorized Service Centers carry a stock of such parts. The use of Briggs & Stratton parts preserves the original design of your engine. Imitation replacement parts offer potential risk including the risk of personal injury. Contact any Briggs & Stratton Authorized Service Center for Original Briggs & Stratton Replacement Parts.

Before Starting

READ THE OPERATING INSTRUCTIONS OF THE EQUIPMENT THIS ENGINE POWERS

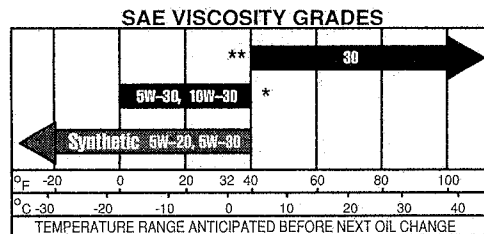
 **NOTE:** Engine is shipped WITHOUT oil.

4-CYCLE OIL RECOMMENDATIONS

Change and Add Oil According to Chart below.

We recommend the use of a high quality detergent oil classified "For Service SE, SF, SG," such as Briggs & Stratton 30 weight oil, part no. 100005. Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits. No special additives should be used with recommended oils.

NOTE: DO NOT MIX OIL WITH GASOLINE.



* Air cooled engines run hotter than automotive engines. Use of multi-viscosity oils (10W-30, etc.) above 40° F (4° C) will result in high oil consumption and possible engine damage. Check oil level more frequently if using these types of oils.

** SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

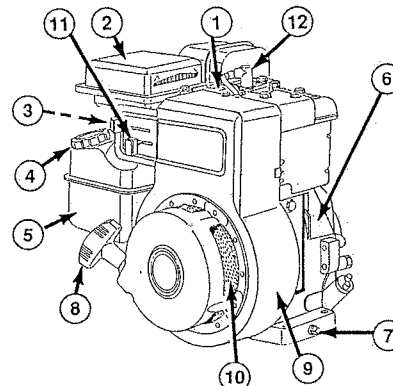
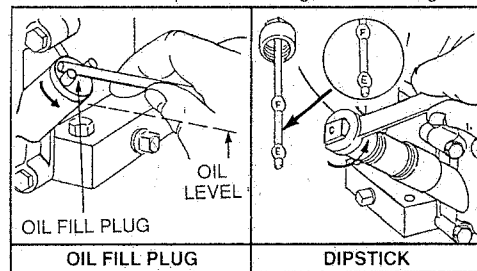
TO FILL CRANKCASE WITH OIL:

Place engine level. Clean area around oil fill. Remove oil fill plug or dipstick. **DO NOT OVER-FILL.** Capacity is approximately 1.25 pints (21 ounces or 0.6 liters). Replace oil fill plug or dipstick.

NOTE: If engine is equipped with optional gear reduction, see instructions on page 8 for filling gear reduction with oil.

TO CHECK OIL LEVEL:

Place engine level. If engine has oil fill plug, oil level should be as shown in following figure. If engine has extended oil fill, remove and wipe oil from dipstick with clean cloth. Screw dipstick firmly into place. Remove to check oil level. Dipstick must be firmly assembled into adapter when engine is running.



1. Tab for spark plug wire
2. Air cleaner
3. Carburetor
4. Fuel fill
5. Fuel tank
6. Cylinder
7. Oil drain plug
8. Rewind starter grip
9. Blower housing
10. Rotating Screen
11. Stop switch
12. Spark plug



FUEL RECOMMENDATIONS

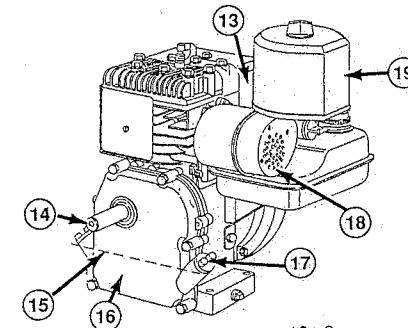
This engine will operate satisfactorily on any gasoline intended for automotive use. A minimum of 77 octane is recommended. **DO NOT MIX OIL WITH GASOLINE.**

Use clean, fresh, **lead-free** gasoline. Leaded gasoline may be used if lead-free is not available. Use of lead-free gasoline results in fewer combustion deposits and longer valve life. We recommend the use of Briggs & Stratton Gasoline Additive, part no. 5041. Purchase fuel in quantity that can be used within 30 days. This will assure fuel freshness and volatility tailored to the season.

NOTE: We **DO NOT** recommend the use of gasoline which contains alcohol, such as gasohol. However, if gasoline with alcohol is used, it **MUST NOT** contain more than 10 percent Ethanol and **MUST** be removed from the engine during storage. **DO NOT** use gasoline containing Methanol. See **STORAGE INSTRUCTIONS.**



DO NOT FILL fuel tank to point of overflowing. Allow approximately 1/4 in. (5mm) of tank space for fuel expansion.



13. Model, type and code numbers
14. Crankshaft
15. Oil level
16. Cover
17. Oil fill plug
18. Muffler
19. Air cleaner

Starting & Stopping

TO START ENGINE:



WARNING: ALWAYS KEEP HANDS AND FEET CLEAR OF MOWER BLADE OR OTHER ROTATING MACHINERY.

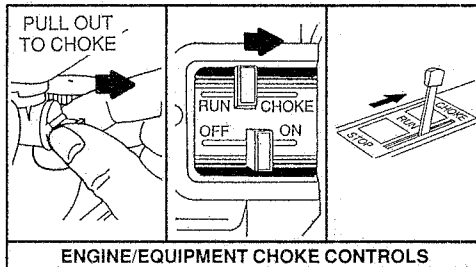
Start, store and fuel engine in a level position.

DO NOT use a pressurized starting fluid. Severe internal damage may occur due to loss of lubrication.

CHOKE ENGINE:



Move engine or equipment controls as illustrated below.

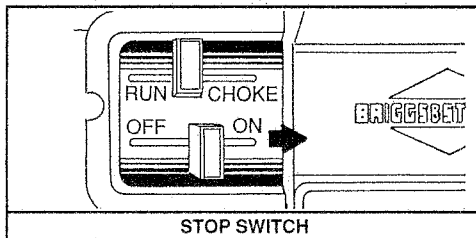


NOTE: A warm engine requires less choking than a cold engine.

NOTE: Choke should fully close. If it does not, equipment control must be readjusted. See ADJUSTMENT section.

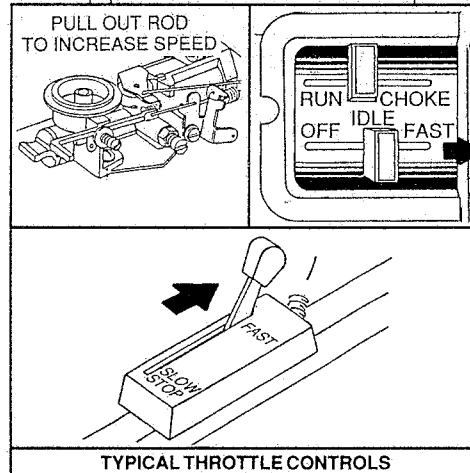
STOP SWITCH:

Move stop switch to "ON" position.



SET THROTTLE CONTROL:

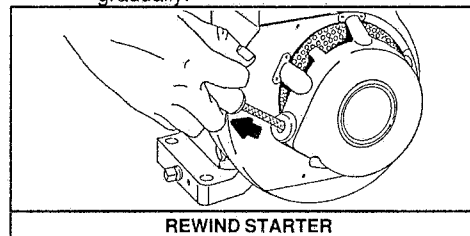
If engine is equipped with manual choke, pull rod or move equipment throttle control to "FAST" position.



REWIND STARTER



Grasp starter grip as illustrated and pull slowly until resistance is felt. **Then pull cord rapidly to overcome compression, prevent kickback and start engine.** Repeat if necessary with choke opened slightly. When engine starts, open choke gradually.



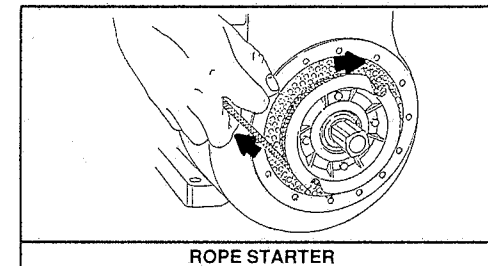
ROPE STARTER (Emergency Only)



If this engine is equipped with removable rewind starter, starter may be removed in an emergency and engine started with rope wrapped around starter cup as shown below.



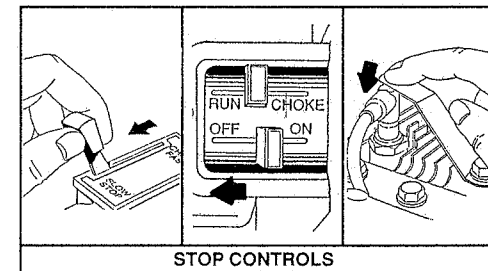
CAUTION: When using rope starter to crank engine, use caution so knotted end of rope does not strike persons standing nearby.



TO STOP ENGINE:



Move equipment/engine control to "SLOW," then "STOP" or "OFF" position. Do not choke carburetor to stop engine. Backfire or engine damage may result if choke is used to stop engine.



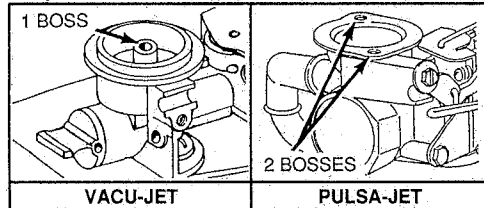
Adjustments

ENGINE AND EQUIPMENT CONTROLS



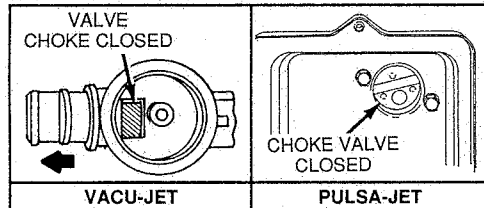
CAUTION: The manufacturer of the equipment on which this engine is installed specifies the Top No-Load RPM at which the engine will be operated. DO NOT EXCEED this RPM.

NOTE: Adjustments depend on whether engine is equipped with **Vacu-Jet** carburetor or **Pulsa-Jet** carburetor. Remove air cleaner. **Vacu-Jet** carburetor has 1 threaded boss in throat of carburetor and **Pulsa-Jet** carburetor has 2 threaded bosses on body of carburetor, as shown below.



TO CHECK REMOTE CHOKE CONTROL:

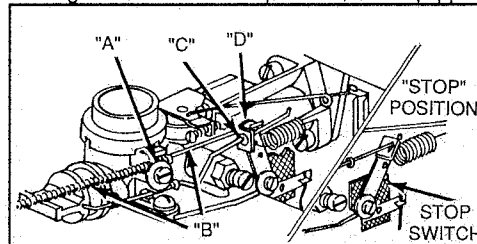
To check operation of remote choke, if so equipped, move equipment control lever to "CHOKE" position. Choke valve should be closed.



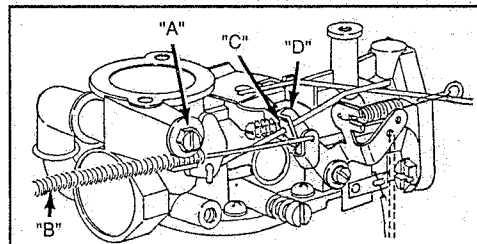
TO ADJUST REMOTE CHOKE CONTROL:

Move equipment control lever to "FAST" position. Loosen casing clamp screw "A" on carburetor or control plate. Move casing and wire "B" until washer "C" just touches bell crank at "D." Tighten casing clamp screw "A." Recheck operation of controls after adjustment. Move equipment control to "STOP"

position. Lever on carburetor or control plate must make good contact with stop switch, if so equipped.



REMOTE CHOKE CONTROL ADJUSTMENT (Vacu-Jet)

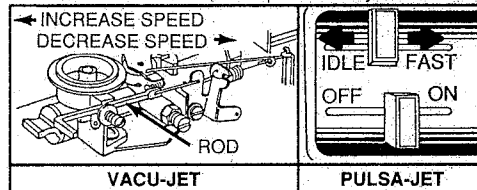


REMOTE CHOKE CONTROL ADJUSTMENT (Pulsa-Jet)

THROTTLE CONTROL:

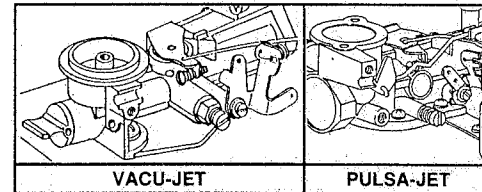
MANUAL FRICTION CONTROL

NOTE: Manual controls require no adjustment.



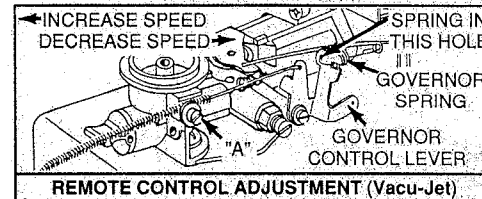
ADJUSTABLE GOVERNOR CONTROL

Governor lever has been adjusted to permit top no-load RPM specified by the equipment manufacturer. If adjustment is required, consult any Briggs & Stratton Authorized Service Center.



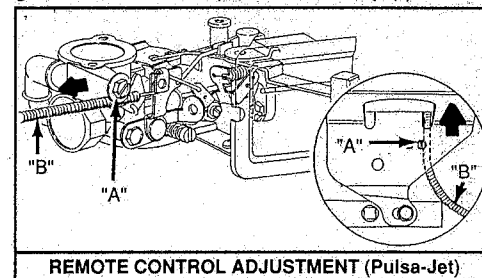
TO ADJUST REMOTE CONTROL (Vacu-Jet):

Loosen casing clamp screw "A" on carburetor and move casing in or out to obtain proper speed. DO NOT EXCEED maximum RPM recommended by manufacturer. Lever on engine must make good contact with stop switch, if so equipped.



TO ADJUST REMOTE CONTROL (Pulsa-Jet):

Move equipment control lever to "FAST" position. Loosen casing clamp screw "A" on carburetor or control plate and move casing and wire "B" in direction shown to end of travel. Move equipment control to "STOP" position. Lever on engine must make good contact with stop switch, if so equipped.



REMOTE CONTROL ADJUSTMENT (Pulsa-Jet)

Adjustments

CARBURETOR ADJUSTMENTS

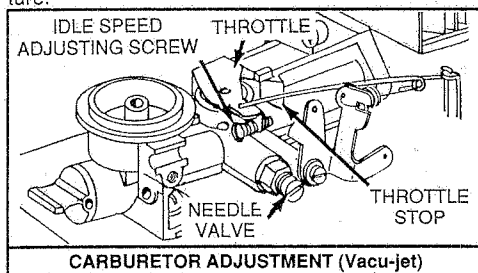
Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude or load. Air cleaner and air cleaner cover must be assembled to carburetor when running engine.

INITIAL ADJUSTMENT:

Gently turn needle valve clockwise until it just closes. Turning valve in too far may damage it. Next open needle valve 1-1/2 turns counterclockwise. This initial adjustment will permit the engine to be started and warmed up (approximately 5 minutes) prior to final adjustment.

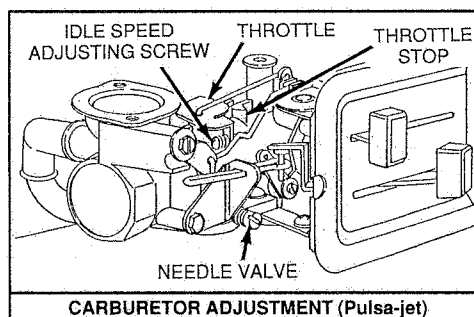
FINAL ADJUSTMENT (Vacu-Jet):

Place equipment control in "FAST" position. Turn needle valve in until engine slows (clockwise - lean mixture). Then turn it out past smooth operating point until engine runs unevenly (rich mixture). Now turn needle valve to the midpoint between rich and lean so the engine runs smoothly. Next, adjust idle RPM. Rotate throttle counterclockwise and hold against stop while adjusting idle speed adjusting screw to obtain 1750 RPM. Release throttle. Engine should accelerate without hesitation or sputtering. If engine does not accelerate smoothly, carburetor should be readjusted, usually to a slightly richer mixture.



FINAL ADJUSTMENT (Pulsa-Jet):

Place equipment control in "SLOW" position. Turn needle valve in until engine slows (clockwise - lean mixture). Then turn it out past smooth operating point until engine runs unevenly (rich mixture). Now turn needle valve to the midpoint between rich and lean so the engine runs smoothly. Next, adjust idle RPM. Rotate throttle counterclockwise and hold against stop while adjusting idle speed adjusting screw to obtain 1750 RPM. Release throttle. Engine should accelerate without hesitation or sputtering. If engine does not accelerate smoothly, carburetor should be readjusted, usually to a slightly richer mixture.



Maintenance



CAUTION: TO PREVENT ACCIDENTAL STARTING when servicing engine or equipment, always remove wire from spark plug and insert in holding tab.

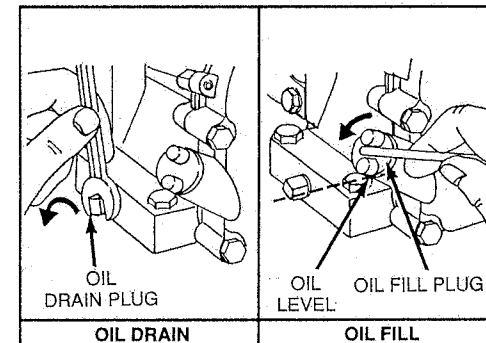


CHECK OIL LEVEL REGULARLY:

Check after each 5 hours of operation or daily. BE SURE OIL LEVEL IS MAINTAINED.

CHANGE OIL AS RECOMMENDED:

Change oil after first 5 hours of operation. Then, under normal operating conditions, change oil after every 50 hours of operation or every season, whichever occurs first. Change oil every 25 hours of operation if the engine is operated under heavy load, or in high ambient temperatures. Remove oil drain plug and drain oil while engine is warm. Replace drain plug. Remove oil fill plug or dipstick and refill with new oil of correct grade. Replace oil fill plug or dipstick.



Maintenance



SERVICE AIR CLEANER:

CARTRIDGE AIR CLEANER

Service pre-cleaner, if so equipped, every 25 hours or every season, whichever occurs first.

Service cartridge every 100 hours or every season, whichever occurs first, if equipped with pre-cleaner.

Service cartridge every 25 hours or every season, whichever occurs first, if NOT equipped with pre-cleaner.

NOTE: Service more often under dusty conditions.

1. Loosen screws or remove knob, and then remove cover.

To service pre-cleaner:

- a. Carefully remove pre-cleaner and wash in liquid detergent and water.
- b. Squeeze dry in a clean cloth.
- c. Allow to air dry thoroughly

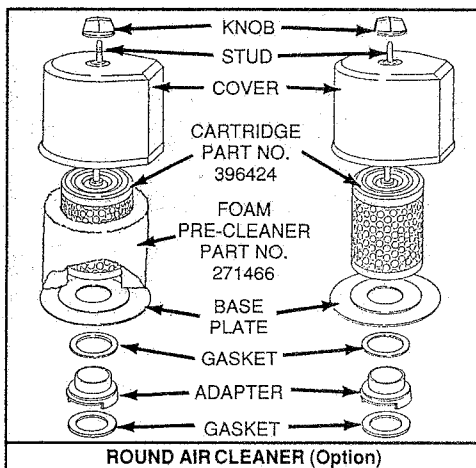
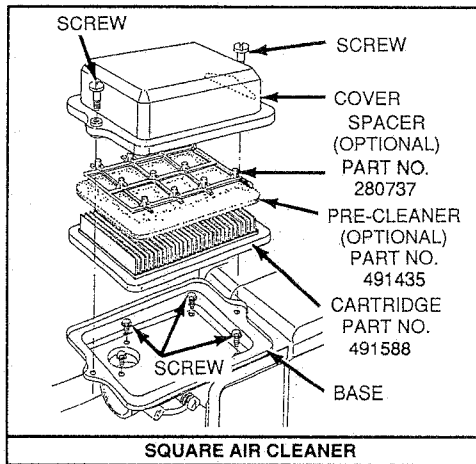
To service cartridge:

- a. Carefully remove cartridge.
- b. Clean by tapping gently on a flat surface.
- c. If very dirty, replace or wash in a non-sudsing detergent and warm water solution. Rinse thoroughly with flowing water from inside out until water is clear. Allow cartridge to stand and air dry thoroughly before using.



CAUTION: Petroleum solvents, such as kerosene, are not to be used to clean cartridge. They may cause deterioration of the cartridge. **DO NOT OIL CARTRIDGE. DO NOT USE PRESSURIZED AIR TO CLEAN OR DRY CARTRIDGE.**

2. Reinstall cartridge and pre-cleaner.
3. Reinstall air cleaner cover and then tighten screws or knob securely.

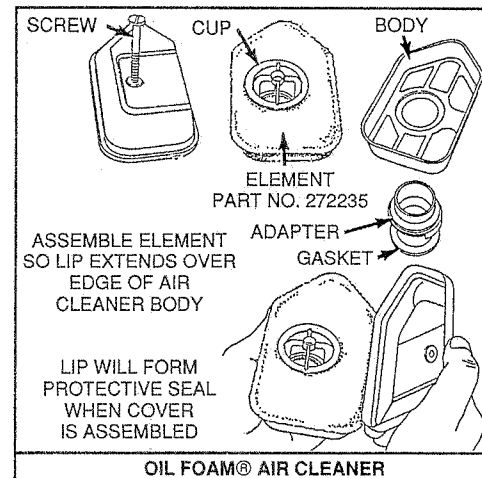


OIL FOAM® AIR CLEANER(Option)

Clean and re-oil element every 25 hours or every season, whichever occurs first.

NOTE: Service more often under dusty conditions.

1. Remove screw.
2. Carefully remove air cleaner to prevent dirt from entering carburetor.
3. Take air cleaner apart and clean.
 - a. Wash element in liquid detergent and water.
 - b. Squeeze dry in a clean cloth.
 - c. Saturate in engine oil. Squeeze in clean, absorbent cloth to remove excess oil.
4. Reassemble parts and fasten securely to carburetor with screw.



Maintenance

CLEAN ENGINE:

Remove dirt and debris with a cloth or brush. Cleaning with a forceful spray of water is not recommended as water could contaminate the fuel system.



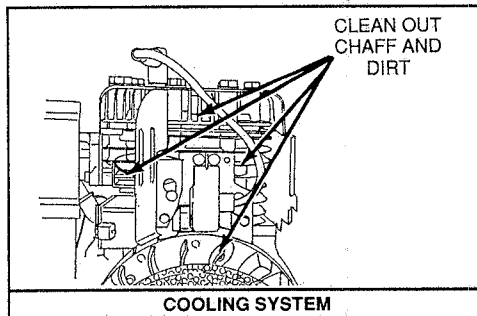
CAUTION: To assure smooth operation, keep governor linkage, springs and controls free of debris.



CAUTION: Periodically clean muffler area to remove all grass, dirt and combustible debris.

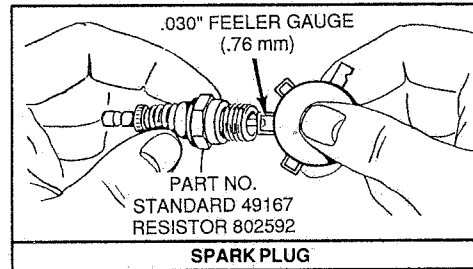
CLEAN COOLING SYSTEM:

Grass, chaff or dirt may clog the rotating screen and the air cooling system, especially after prolonged service cutting dry grasses. After 100 hours of operation or every season, whichever occurs first, remove the blower housing and clean the area shown to prevent overspeeding, overheating and engine damage. Clean more often if necessary.



REPLACE OR CLEAN SPARK PLUG:

Replace or clean every 100 hours of operation or every season, whichever occurs first.



CAUTION: Sparking can occur if wire terminal does not fit firmly on spark plug. Reform terminal if necessary.

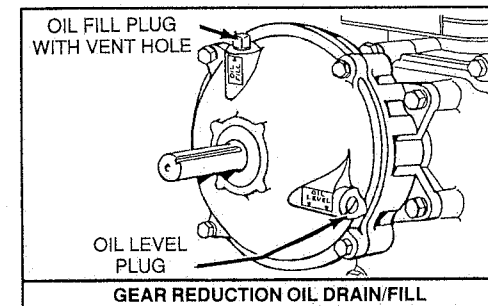
NOTE: Do not blast clean spark plug. Spark plug should be cleaned by scraping or wire brushing and washing with a commercial solvent.

CLEAN SPARK ARRESTER SCREEN:

If engine muffler is equipped with spark arrester screen assembly, remove every 50 hours or every season for cleaning and inspection. Replace if damaged. Contact any Briggs & Stratton Authorized Service Center.

CHANGE OIL (Gear Reduction Option):

Remove oil level plug and oil fill plug. Drain oil every 100 hours of operation or every season. To refill, pour SAE 30 oil into oil fill hole until it runs out level check hole. Replace both plugs. Oil fill plug has a vent hole and must be installed on top of gear case cover.



REMOVE COMBUSTION DEPOSITS:

Remove cylinder head every 100-300 hours of operation. Scrape and wire brush the combustion deposits from cylinder, cylinder head, top of piston and around valves. Reassemble gasket and cylinder head. Turn screws down finger tight. Torque cylinder head screws in a staggered sequence to 140 in.-lbs. (15.8 Nm).

Maintenance Schedule

Follow the hourly or calendar intervals, whichever occur first.
More frequent service may be required.

| MAINTENANCE OPERATION | Every 5 Hours or Daily | 25 Hours or Every Season | 50 Hours or Every Season | 100 Hours or Every Season | 100-300 Hours |
|---|------------------------|--------------------------|--------------------------|---------------------------|---------------|
| Check Oil Level | ● | | | | |
| Change Oil ♦ | | | ● Note 1 | | |
| Change Oil (Gear Reduction) | | | | ● | |
| Service Pre-Cleaner or Oil Foam® Element | | ● Note 2 | | | |
| Service Air Cleaner Cartridge (If no pre-cleaner) | | ● Note 2 | | | |
| Service Air Cleaner Cartridge (If dual element) | | | | ● Note 2 | |
| Clean Cooling System | | | | ● Note 2 | |
| Inspect Spark Arrester (Optional Accessory) | | | ● | | |
| Replace or Clean Spark Plug | | | | ● | |
| Clean Combustion Chamber Deposits | | | | | ● |









♦ Change oil after first 5 hours, then after every 50 hours or every season.

Note 1: Change oil every 25 hours when operating under heavy load or in high ambient temperatures.

Note 2: Clean more often under dusty conditions or when airborne debris is present.

BRIGGS & STRATTON AUTHORIZED SERVICE CENTERS ARE READY TO SERVE YOU AND ARE COMMITTED TO QUALITY SERVICE.

International Symbols

-  Read Operator's Manual
-  Warning/Caution
-  Oil
-  Fuel
-  Choke
-  Fast
-  Slow
-  Air Cleaner

General Information

This is a single cylinder, L-head, air-cooled engine.

On mobile equipment, the engine will operate satisfactorily at any angle at which operator and equipment can function safely.

MODEL SERIES 90100 & 90200

| | |
|----------------|-------------------------|
| Bore | 2-9/16 in. (65.09 mm) |
| Stroke | 1-3/4 in. (44.45 mm) |
| Displacement | 9.02 cu. in. (148.0 cc) |
| Torque (90100) | 4.2 ft.-lbs. @ 3000 RPM |
| Torque (90200) | 5.0 ft.-lbs. @ 3000 RPM |

NOTE: Engine power will decrease 3-1/2% for each 1,000 feet (305 m) above sea level and 1% for each 10° F (5.6° C) above 60° F (16° C).

TUNE-UP SPECIFICATIONS

| DESCRIPTION | B & S PART NO. |
|--|----------------|
| Air cleaner, square cartridge | 491588 |
| Air cleaner, square pre-cleaner (optional) | 491435 |
| Air cleaner, square spacer (optional) | 280737 |
| Air cleaner, round cartridge (optional) | 396424 |
| Air cleaner, round pre-cleaner (optional) | 271466 |
| Air cleaner, oil foam® (optional) | 272235 |
| Standard spark plug (Champion J19LM) | 492167 |
| Resistor spark plug (Champion RJ19LM) | 802592 |

| CLEARANCES | DIMENSION |
|----------------|----------------------------|
| Spark Plug Gap | .030 in. (.76 mm) |
| Intake Valve* | .005-.007 in. (.13-.18 mm) |
| Exhaust Valve* | .007-.009 in. (.18-.23 mm) |

* with valve springs installed and piston 1/4 in. (6 mm) past top dead center.

In some areas, local law requires the use of a resistor spark plug to suppress ignition signals. If an engine was originally equipped with a resistor spark plug, be sure to use the same type of spark plug for replacement.

Note: Walking fingers logo and "Yellow pages" are registered trademarks in various jurisdictions.

STORAGE INSTRUCTIONS

Engines to be stored over 30 days need to be protected or drained of fuel to prevent gum from forming in the fuel system or on essential carburetor parts.

- For engine protection, we recommend the use of Briggs & Stratton Gasoline Additive, Part No. 5041, available from any Authorized Briggs & Stratton Service Center. Mix Additive with fuel in fuel tank or storage container. Run engine for a short time to circulate Additive through carburetor. Engine and fuel can be stored up to 24 months.



CAUTION: If Additive is not used or if engine is operating on gasoline containing alcohol, remove all fuel from tank and run engine until it stops from lack of fuel.

- While engine is still warm, drain oil from crankcase. Refill with fresh oil.
- Remove spark plug and pour approximately 1/2 ounce (15 ml) of engine oil into the cylinder. Replace spark plug and crank slowly to distribute oil.
- Clean dirt and chaff from cylinder, cylinder head fins, blower housing, rotating screen and muffler areas.
- Store in a clean and dry area.

SERVICE & REPAIR INFORMATION

If service or repair is needed, contact a Briggs & Stratton Authorized Service Center. To serve you promptly and efficiently, a Service Center will need the model, type and code numbers on your engine.



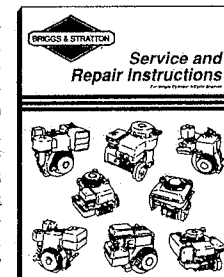
Your nearest Service Center may be located in the "Yellow Pages"™ directory under "Engines, Gasoline," "Gasoline Engines," or similar category. You may also locate the Service Center in your mailing zip code area by telephoning **1-800-233-3723**. There are over 30,000 Authorized Service Centers worldwide available to serve you.

Authorized Service Centers carry a stock of Original Briggs & Stratton Service Replacement Parts and are equipped with special service tools. Ask for Original Briggs & Stratton Service Replacement Parts which preserve the original design of your engine. Imitation replacement parts offer potential risks in internal construction as well as fit, finish and warranty back-up. Trained mechanics assure expert repair service on all Briggs & Stratton engines.

Major engine repairs require proper tools and a thorough knowledge of internal combustion engine repair procedure.

Briggs & Stratton publishes illustrated shop manuals, parts lists and owner's manuals for every engine it manufactures. To receive a list of available publications, write to Briggs & Stratton Corporation, P. O. Box 1144, Milwaukee, WI 53201, Attention: Service Division.

The shop manual shown here includes "Theories of Operation," common specifications and detailed information covering adjustment, tune-up and repair of Briggs & Stratton L-head, single cylinder, 4 cycle engines and is available from a Briggs & Stratton Authorized Service Center. You can also order directly from the factory at the above address.



Part No. 270962

ABOUT YOUR ENGINE WARRANTY: (see back cover for statement of LIMITED WARRANTY.)

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, when an engine prematurely fails, if the failure is caused by abuse, neglect, or the equipment on which the engine is applied, the warranty will not apply. Similarly, the warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

IMPROPER MAINTENANCE:

The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

THIS WARRANTY COVERS ONLY DEFECTIVE MATERIAL AND/OR WORKMANSHIP. WARRANTY DOES NOT APPLY TO ENGINE ADJUSTMENT OR REPAIR REQUIRED DUE TO:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL BRIGGS & STRATTON PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton gasoline stabilizer, Part No. 5041.)

4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (4 cycle engines: check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) (2 cycle engines: use correct mixture of gasoline and BIA/NMMA certified oil.) Read "Owner's Manual."
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a NONORIGINAL AIR CLEANER ELEMENT OR CARTRIDGE. (At recommended intervals, clean and re-oil the Oil-Foam® element or the foam pre-cleaner, and replace the cartridge.) Read "Owner's Manual."
7. Parts damaged by overspeeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. (Clean fins on the cylinder, cylinder head and flywheel at recommended intervals.) Read "Owner's Manual."
8. Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, overspeeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.
11. Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor windings, caused by the use of alternate fuels such as, liquified petroleum, natural gas, altered gasolines, etc.

WARRANTY IS AVAILABLE ONLY THROUGH SERVICE DEALERS WHICH HAVE BEEN AUTHORIZED BY BRIGGS & STRATTON CORPORATION. YOUR NEAREST AUTHORIZED SERVICE DEALER IS LISTED IN THE "YELLOW PAGES™" OF YOUR TELEPHONE DIRECTORY UNDER "ENGINES, GASOLINE" OR "GASOLINE ENGINES," "LAWN MOWERS," OR SIMILAR CATEGORY.

| | | | | | | |
|---|-----------|-----------|-----------|-----------|--------------|--------------|
| Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending) | | | | | | |
| 5,150,674 | 5,040,503 | 4,971,219 | 4,520,288 | 4,270,509 | 3,991,152 | DES. 308,872 |
| 5,105,331 | 4,996,956 | 4,895,119 | 4,453,507 | 4,233,534 | 3,961,724 | DES. 308,871 |
| 5,086,890 | 4,995,357 | 4,819,593 | 4,430,984 | 4,168,288 | DES. 309,458 | |
| 5,040,644 | 4,977,879 | 4,694,792 | 4,355,253 | 4,068,636 | DES. 309,457 | |

In the USA and Canada, a 24 hour hot line, **1-800-233-3723**, has a menu of pre-recorded messages offering you engine maintenance information.

BRIGGS & STRATTON ENGINE OWNER WARRANTY POLICY

effective October 1, 1993

Replaces all undated Warranties and all Warranties

dated before October 1, 1993

LIMITED WARRANTY

"Briggs & Stratton Corporation will repair or replace, free of charge, any part, or parts of the engine that are defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this Warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions provided for in this policy. For warranty service contact your nearest Authorized Service Dealer as listed in the 'Yellow Pages™' under 'Engines, Gasoline,' 'Gasoline Engines,' 'Lawn Mowers' or similar category. THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state."

Briggs & Stratton Corporation



F. P. Stratton, Jr.
Chairman and Chief Executive Officer

WARRANTY PERIOD

| ENGINES | WITHIN U.S.A. AND CANADA | | OUTSIDE U.S.A. AND CANADA | |
|---|---|-----------------|---------------------------|-----------------|
| | CONSUMER USE* | COMMERCIAL USE* | CONSUMER USE* | COMMERCIAL USE* |
| All Vanguard™ engines. | 2 year - engine / Lifetime** - Magnetron® ignition. | | | |
| All Diamond Plus, Europa™, Industrial Plus™ and all I/C®. | 2 year | 1 year | 2 year | 1 year |
| Quantum® and Diamond Power | 2 year | 90 days | 2 year | 90 days |
| All standard 2 through 18 HP engines installed on lawn mowers, riders, edgers, tillers, and all Sno/Gard engines. | 2 year | 90 days | 1 year | 90 days |
| All other standard 2 through 18 HP engines. | 1 year | 90 days | 1 year | 90 days |

* For purposes of this warranty policy, "consumer use" means personal residential household use by the original retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty. **Engines used in competitive racing or on commercial or rental tracks are not warrantied.**

** Lifetime limited warranty of the Magnetron® ignition covers parts and labor for the first five (5) years from the date of purchase; thereafter only parts. "Lifetime" means lifetime of the engine in the hands of the original purchaser.

**NO WARRANTY REGISTRATION CARD IS NECESSARY TO OBTAIN WARRANTY ON BRIGGS & STRATTON ENGINES.
YOU MUST SAVE THE PURCHASE RECEIPT. A PROOF OF PURCHASE DATE WILL BE REQUIRED TO OBTAIN WARRANTY.**